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AUTHOR Turner, Nigel; Katz, Albert
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ABSTRACT

Two studies investigated the processing of familiar and unfamiliar figurative language. Subjects read paragraphs containing figurative sentences (proverbs in study 1 and metaphors in study 2) or literal controls; later subjects were given a cued recall test designed to test their memory for contextually inappropriate meanings (a literal cue for a target used figuratively and a figurative cue for a target used literally). Metaphor targets were created by writing a literal paraphrase of a proverb that maintained the underlying metaphor but used a different surface structure. Processing time for unfamiliar proverbs, and memory errors for both familiar and unfamiliar proverbs indicated that the conventional meaning of the target was activated, even when it was contextually inappropriate. Results of cued recall suggested that literal meaning was processed automatically for both familiar and unfamiliar proverbs, while figurative meaning was processed automatically only when the proverb was familiar. The similarity of results from the proverb and metaphor data suggest that it is the conceptual model created by the proverb that is important rather than the surface structure sentence of the proverb. Results further indicated that differences between familiar and unfamiliar, figurative and literal target sentences were to some extent caused by an obligatory activation of conventional meaning, in addition to the degree of constraint on the sentence's meaning caused by the context. (Two tables of data and six figures of data are included.) (Author/SR)

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ACTIVATION OF CONVENTIONAL MEANING DURING THE PROCESSING OF FIGURATIVE LANGUAGE.

Nigel Turner & Albert Katz,

University of Western Ontario

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Send Correspondence to:

Nigel Turner
Dept. of Psychology
University of Western Ontario
London, Ontario, CANADA
N6A 5C2

E-mail: TURNER@VAXR.SSCL.UWO.CA

CS213121

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ACTIVATION OF CONVENTIONAL MEANING

DURING THE PROCESSING OF

FIGURATIVE LANGUAGE.

Abstract

Two studies investigated the processing of familiar and unfamiliar figurative language. Subjects read paragraphs containing figurative sentences (study 1 = proverbs; study 2 = metaphors) or literal controls; later subjects were given a cued recall test designed to test their memory for contextually inappropriate meanings (a literal cue for a target used figuratively and a figurative cue for a target used literally). Metaphor targets were created by writing a literal paraphrase of a proverb that maintained the underlying metaphor but used a different surface structure. Processing time for unfamiliar proverbs, and memory errors for both familiar and unfamiliar proverbs indicate that the conventional meaning of the target was activated, even when it was contextually inappropriate. Result of cued recall suggest that literal meaning is processed automatically for both familiar and unfamiliar proverbs, while figurative meaning is processed automatically only when the proverb is familiar. The similarity of the results from the proverb and metaphor data suggests that it is the conceptual model created by the proverb that is important rather than the surface structure sentence of the proverb. Furthermore the results of our research indicate that differences between familiar and unfamiliar, figurative and literal target sentences are to some extend caused by an obligatory activation of conventional meaning, in addition to the degree of constraint on the sentence's meaning caused by the context.

HOW DO WE PROCESS NON-LITERAL LANGUAGE?

1 **STANDARD PRAGMATIC POSITION:** nonliteral meaning is sought only after the failure to compute literal sense. If literal sense is successfully computed, then figurative meaning is not computed (eg. Searle, 1979).

2 **SCHEMATIC POSITION:** Context sets up an interpretive schema in which information is understood. Context suggesting a figurative interpretation will facilitate comprehension of literal language. Thus literal language does not have unconditional priority in processing nor is the processing of figurative meaning caused by a failure to successfully compute a literal sense (Ortony, Schallert, Reynolds, and Antos, 1978; Gibbs, 1980; Gildea and Glucksberg, 1983).

TOWARDS AN ALTERNATIVE

- Our earlier research (Turner & Katz, 1990) suggests a third possibility: automatic activation of conventional meaning.

- We reasoned that if the schematic position is correct then familiar and nonfamiliar uses of language should benefit equally from context. Thus we manipulated familiarity and context, allowing us to disentangle conventional language from literal language in order to address this issue.

- Familiar and unfamiliar proverbs were used as target sentences. These were placed in contexts that favored their literal or figurative meaning (see table 1 for sample item). Note: conventional uses are familiar proverbs used figuratively and unfamiliar proverbs used literally.

- As an additional comparison paraphrases of the context appropriate meaning of the proverbs were presented as targets to establish a baseline with which to evaluate the time needed to process the meaning conveyed by the proverb.

- Subjects received only one version of each item, but read items from all conditions.

- Subject read the proverbs and paraphrases in context, on a computer screen, and later were asked to recall how the proverb was used by writing an interpretion of the proverb, thus allowing us to measure the subjects comprehension and categorize their errors.

- We found that unfamiliar proverbs used figuratively (see figure 1) are processed more slowly than 1) their paraphrases 2) unfamiliar proverbs used literally, 3) familiar proverbs (Turner and Katz, 1990, Nov.).

- Familiar proverbs produce a pattern like that predicted by schema theorists, while unfamiliar proverbs produce a pattern like that predicted by the standard pragmatic model.

- The interpretation errors were more suggestive. Familiar proverbs used literally were sometimes interpreted figuratively, and unfamiliar proverbs used figuratively sometimes interpreted literally (see figure 2). **THIS POST HOC FINDING SUGGESTS THAT THE CONVENTIONAL MEANING MAY BE PROCESSED AUTOMATICALLY EVEN WHEN CONTEXTUALLY INAPPROPRIATE.**

Study 1: Proverbs

Problem:
- To experimentally replicate the context inappropriate interpretations found in our previous study and test the hypothesis that conventional meaning is unconditionally activated.

Logic of experiment:
- Tulving has argued that a cue can only work as a cue if it is involved in the original encoding.

- Verbrugge and McCarrell (1977), have shown that the ground, or the meaning, of the metaphor is an effective recall cue.

- Using the logic of these researchers we reasoned that cues related to the different meanings of the target sentences (literal vs figurative) could be used to test for the processing of those meanings.

- If conventional meaning is automatically activated then literal cues should be more effective cues for unfamiliar proverbs while figurative cues should be more effective for familiar proverbs, even in context inappropriate cases.

Method

- The Procedure was similar to that employed in Turner & Katz (1990), but only proverbs were used as targets (ie. there were no paraphrases as targets).

- Subjects read the proverbs on the computer screen, then after all items were finished, they were given 12 sheets with cues printed on them.

- CUES WERE ALWAYS CONTEXTUALLY INAPPROPRIATE.

- To isolate the effects of context and convention, the cues used were always unrelated to the context. Thus subjects who read a proverb used figuratively were given a literal cue and those who read the proverb used literally were given a figurative cue.

Results

Reading Speed Data
- There were main effects of proverb familiarity and context type (see figure 3) but no interaction.

Cued Recall Data
- Literal cues were more effective than figurative cues regardless of familiarity.

- Figurative cues were effective only for familiar proverbs.

- There was a near absence of recall for unfamiliar proverbs in a literal context cued with a figurative cue (see figure 4).

Discussion

- These data suggest that contextually inappropriate literal meaning is processed for both familiar and unfamiliar proverbs while contextually inappropriate figurative meaning is processed only for familiar proverbs. Thus figurative meaning is only processed automatically when the proverb is familiar.

Problem:
- Are these results caused by the processing of figurative meaning or do they result from some peculiarity of syntax for proverbs, differences in the constraint on meaning for proverbs or lexicalization of the proverbs surface form? Can they be generalize to metaphors?

- To answer these questions alternative forms of the proverb were generated by writing literal paraphrases of the proverbs that preserved the underlying metaphor, but was free of the syntactic or lexicalization problems that could confound proverb research.

Study 2: Metaphors

Method

- A list of alternative versions for each proverb was put together that kept the metaphoric meaning of the proverb, but did not have the syntactic, constraint, or lexicalization problems that proverbs may have. (Note: we use 'metaphor' in the sense that these modified proverbs preserve the root metaphor or underlying image, but have an altered surface form.)
- Metaphor alternatives were literal paraphrases of the proverbs
- Two metaphor alternatives for each proverb were used. The subject were randomly assigned one version.

Results

Reading Speed Data

- For reaction time there was a main effect of metaphor familiarity (see figure 5), and a main effect of context (literal readings were faster than figurative readings), there was no interaction.

Cued recall data

- Literal cues were more effective than figurative cues regardless of familiarity (see figure 6).
- Familiar metaphors were easier to recall than unfamiliar metaphors.
- There was a near absence of recall for unfamiliar metaphors in a literal context cued with a figurative cue.
- Intended cues resulted in higher recall for all cells except unfamiliar metaphors used literally with figurative cues.

Conclusions

1) The higher level of recall to intended compared to unintended cues indicates that the a priori selection of cues worked. These were effective cues. If the recall had been more or less random, then the subjects would have picked the unintended cues more frequently than the intended cues because for each item there are 11 unintended cues, and only 1 intended cue. The majority of responses were to intended cues.

2) The faster processing of literal readings indicates that literal meaning is more easily accessed. Moreover there was a high level of recall using literal cues even though it was contextually inappropriate suggesting that literal meaning is automatically activated for both familiar and unfamilar proverbs and metaphors. These findings seem to support the Standard Pragmatic model.

3) The relatively high level of recall of familiar proverbs and metaphors using figurative cues indicates that the figurative meaning of familiar proverbs and metaphors is automatically activated, even when contextually inappropriate, and is thus consistent with Gildea and Glucksberg (1983) findings using a metaphor stroop task.

4) The near absence of recall for unfamilar proverbs and metaphors cued with figurative meaning indicates that potential metaphoric meanings are NOT ALWAYS processed and thus contradicts the claims of Gildea and Glucksberg (1983). Processing of unfamiliar figurative language is unfamiliar figurative language is an effortful process that requires the recognition by the subject that a sentence or word is being used figuratively.

5) As additional evidence for the processing of literal meaning of unfamiliar proverbs used figuratively, subjects sometimes could not recall the exact words of the proverbs but could recall a literal paraphrase, suggesting that the proverb had been encoded according to its literal meaning, rather than its surface form or its figurative meaning. In fact the bulk of responses in study 2 were gist recall that captured the literal meaning rather than surface form or the figurative meaning.

6) Replication of our cued recall results using metaphors supports our contention that it is the underlying conceptual model that the proverb evokes, rather than the surface structure that is important. In addition the replication shows that our results were not caused by some peculiarity of syntax for proverbs, differences in the constraint on meaning for proverbs or the lexicalization of the proverbs surface form. Finally the results of our research indicate that differences between familiar and unfamiliar, figurative and literal target sentences are to some extend caused by an obligatory activation of conventional meaning, in addition to the degree of constraint on the sentence's meaning caused by the context.

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Table 1

Sample Item: Familiar Proverb

There are plenty of fish in the sea

Literal Context

"I thought I'd hooked a big one," said a fisherman.
"It was a huge, beautifyl salmon."
"I wrestled with it for over an hour."
"But the line broke and it swam away."
"Well, don't worry about it," said a second fisherman.

"There are plenty of fish in the sea."(target proverb)
"The ocean is filled with salmon."
(paraphrase control)

"Try again, I've lost a few big ones before."
"That's what makes the sport exciting."
"If fishing was easy, it would be boring."

Figurative Context

"I thought I'd found my true love," said a teenage girl.
"He was so handsome, and smart too."
"We've been dating for two whole months."
"But we broke up, he's found someone else."
"Well don't worry about it," said a second girl.

"There are plenty of fish in the sea."(target proverb)
"There are a lot of great guys out there." (paraphrase control)

"Try again, I've broken up with guys before."
"You'll get over it, that's how you learn."
"Without heartbreaks, romance would get boring."

Table 2

Example of cues:

Familiar Proverb:

There are plenty of fish in the sea

Literal cue: the ocean is filled
Figurative cue: other lovers

Unfamiliar Proverb:

Raw leather will stretch

Literal cue: making shoes
Figurative cue: training children

Table 3

Example Metaphor Targets

Familiar Proverb

As you make your bed, so you must lie in it.

Metaphor Versions *

1 You'll find your bed in whatever condition you left it.
2 The condition of your bed, is your responsibility.

Unfamiliar Proverb

White silver draws black lines.

Metaphor Versions *

1 Black marks can be made using silver.
2 Shiny silver leaves black streaks.

* Note: we use 'metaphor' in the sense that these modified proverbs preserve the root metaphor or underlying image, but have an altered surface form.

Figure 1

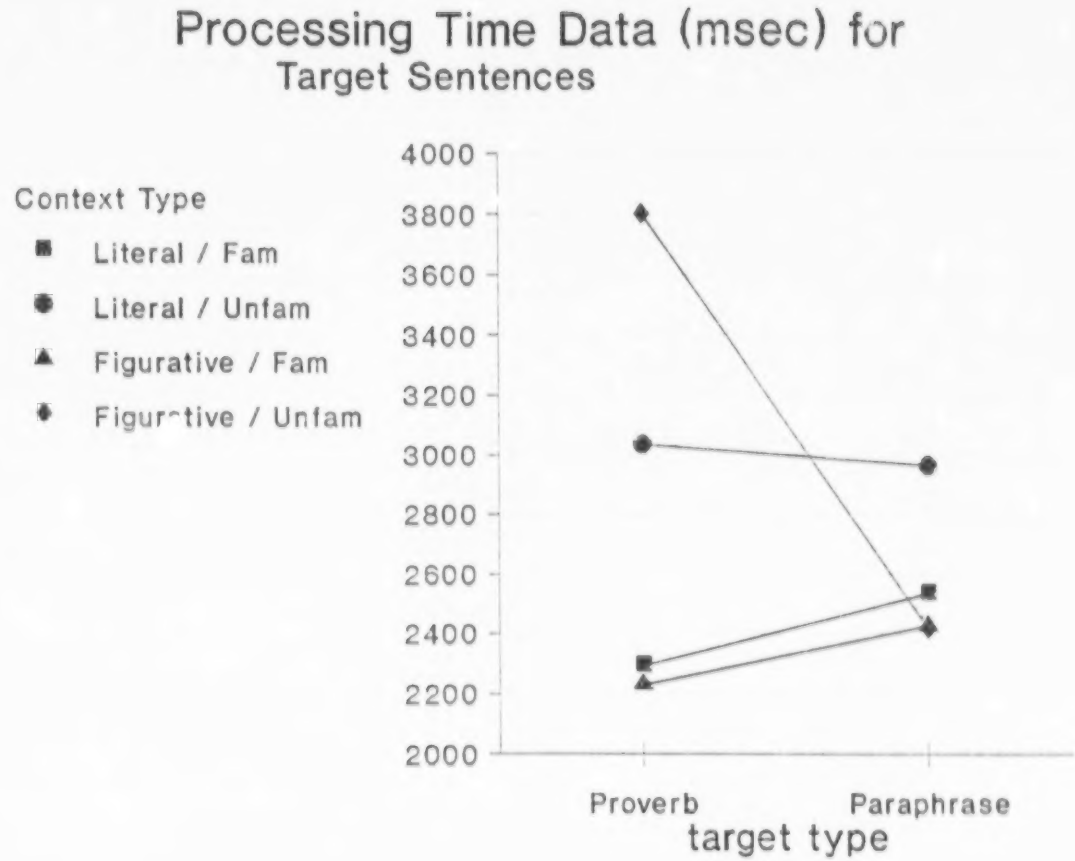
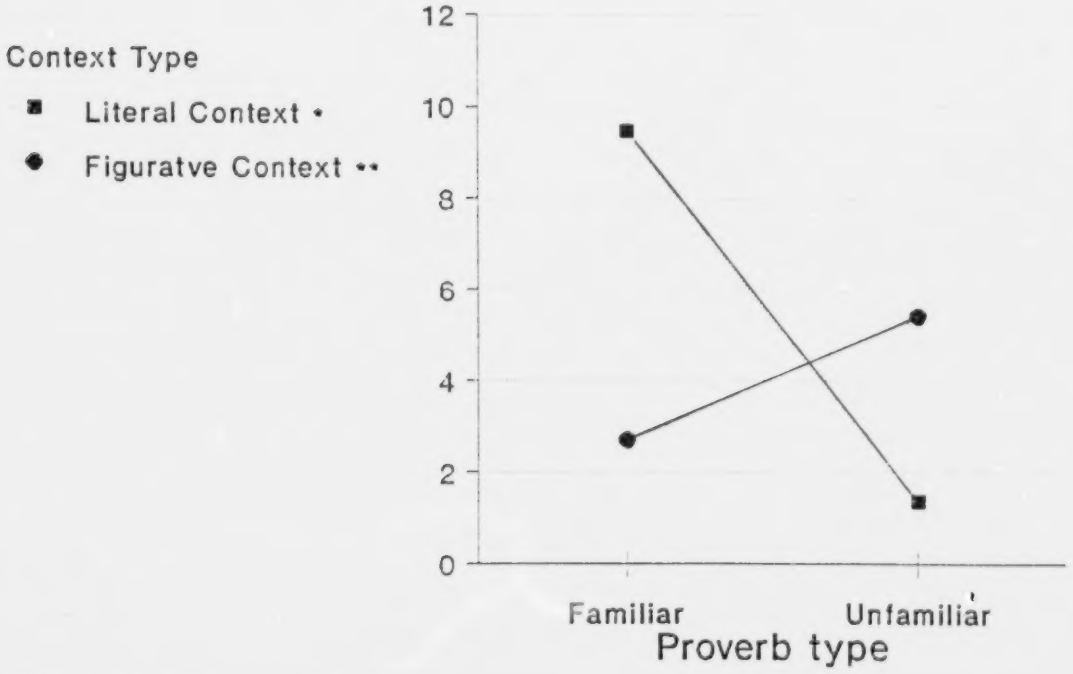

Processing Time Data (msec) for
Target Sentences
Context Type
Literal / Fam
Literal / Unfam
Figurative / Fam
Figurative / Unfam
4000
3800
3600
3400
3200
3000
2800
2600
2400
2200
2000
Proverb
Paraphrase
target type

Figure 2

Context Inappropriate Interpretations for Proverbs (percent of all items).



• Figurative interpretations given
•• Literal interpretations given

Figure 3

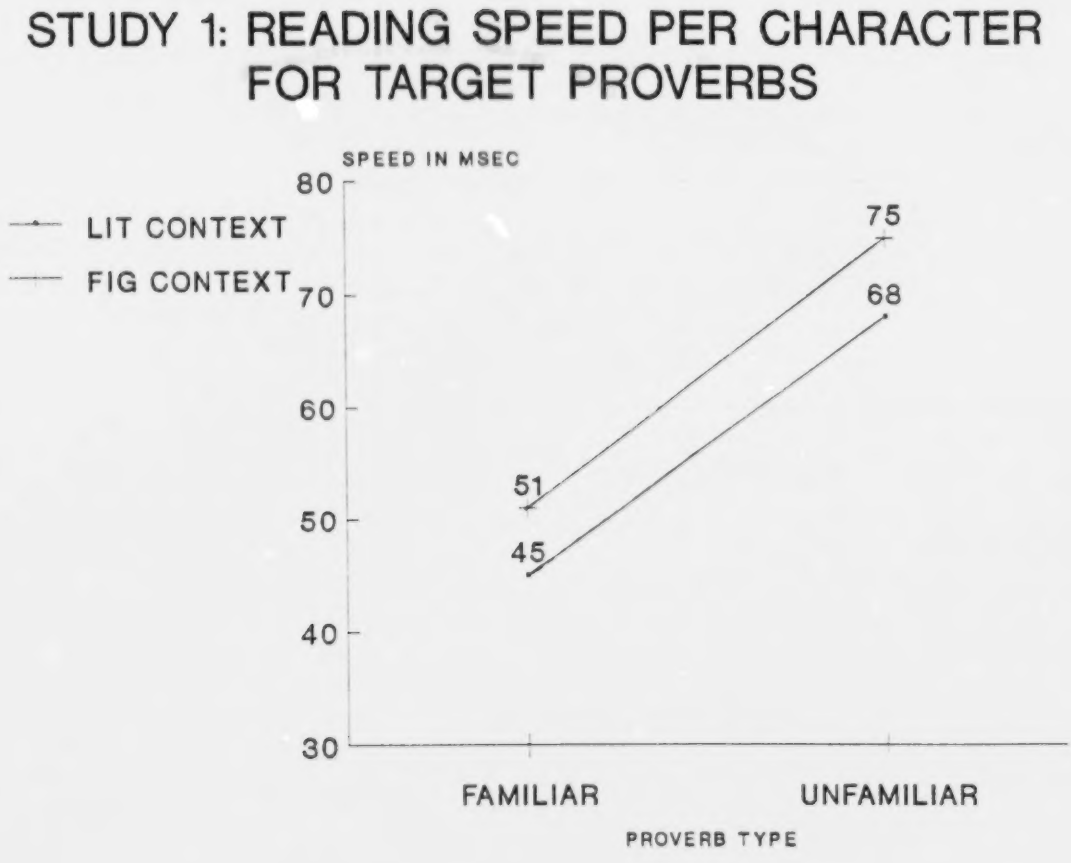
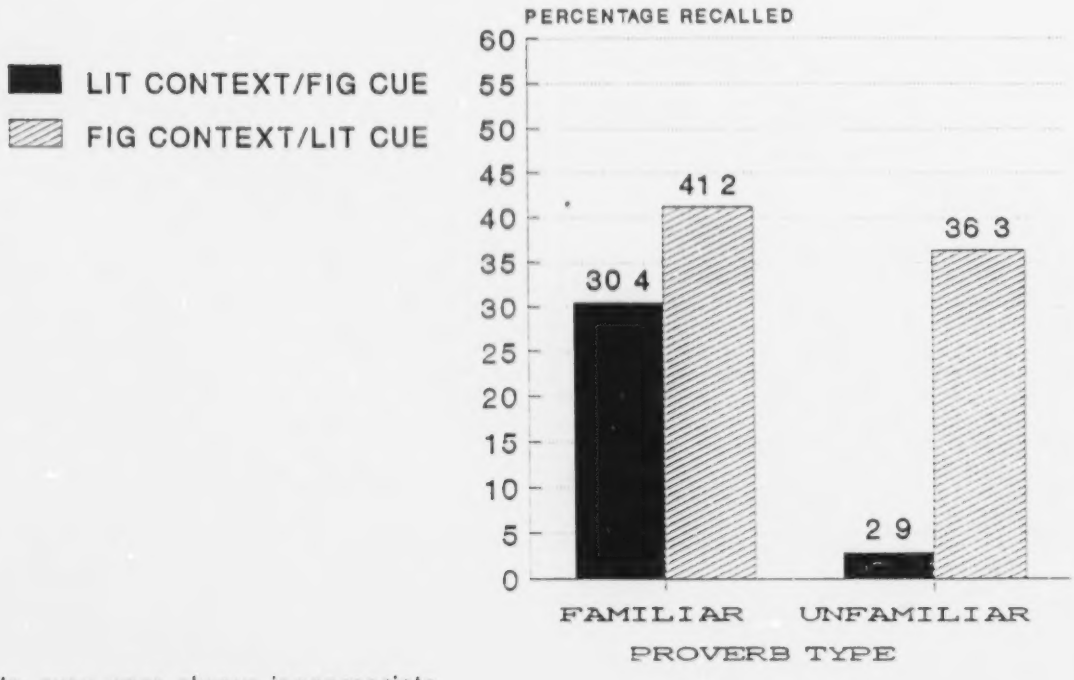

STUDY 1: READING SPEED PER CHARACTER FOR TARGET PROVERBS
SPEED IN MSEC
80
70
60
50
40
30
LIT CONTEXT
FIG CONTEXT
75
68
51
45
FAMILIAR
UNFAMILIAR
PROVERB TYPE

Figure 4

STUDY 1: GIST RECALL OF TARGET PROVERBS
CUED WITH CONTEXT INAPPROPRIATE MEANING



Note: cues were always inappropriate for the context, thus the cues were only related to the proverb.

Figure 5

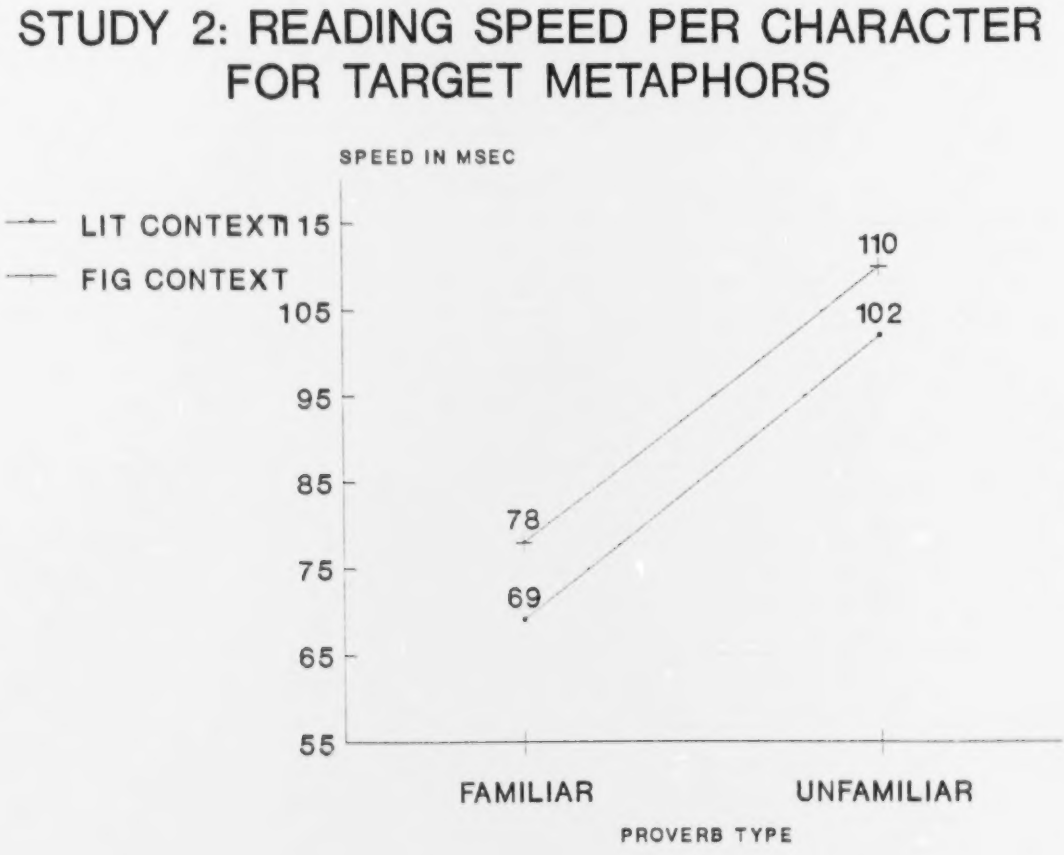
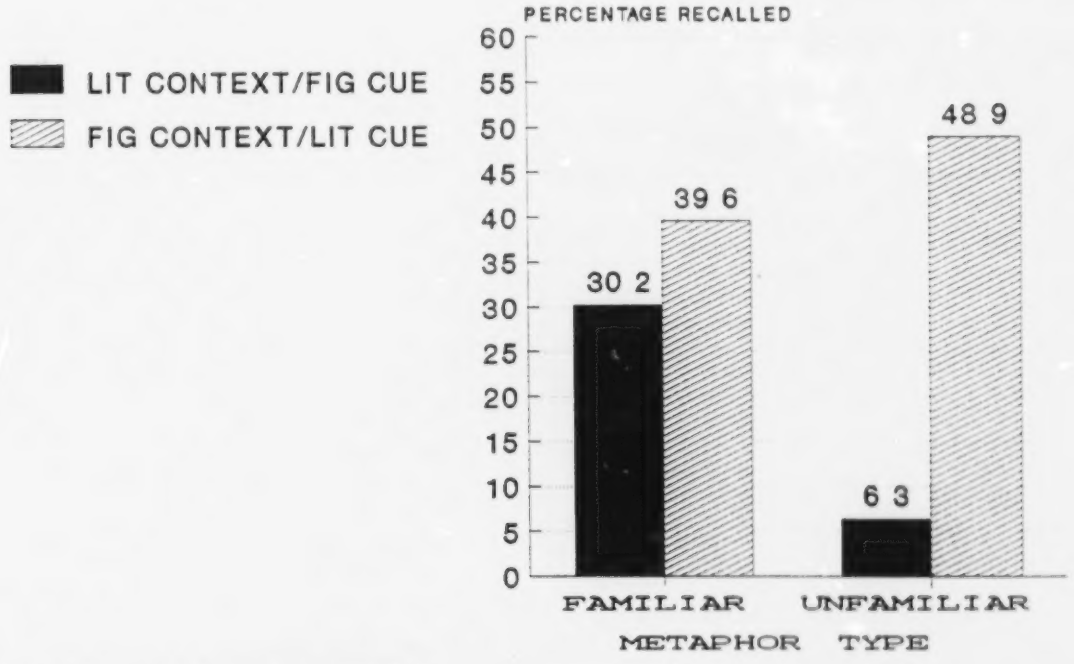

STUDY 2: READING SPEED PER CHARACTER FOR TARGET METAPHORS
SPEED IN MSEC
LIT CONTEXT
FIG CONTEXT
115
105
95
85
75
65
55
110
102
78
69
FAMILIAR
UNFAMILIAR
PROVERB TYPE

Figure 6

STUDY 2: GIST RECALL OF TARGET METAPHORS CUED WITH CONTEXT INAPPROPRIATE MEANING



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